Collider-Accelerator Department

Energized Circuit Work Permit

Permit for Working "On or Near" Energized Components

FOR SUB-RANGE B

Current > 10ma *and* AC Voltage from 50V to 250V rms *or* DC Voltage 50-1000

This permit is required to allow work on energized electrical systems in accordance with ES&H Standard 1.5.0. and C-A OPM 1.5. This permit applies to all personnel who work at the C-A Complex. Qualified Plant Engineering personnel may perform this work under Plant Engineering's Energized Circuit Work Permit system.

Location/Circuit: CA complex – Generic Permit System Description:	CA Group:

Description of task:
Testing or Diagnosing of 50 – 250 volt rms ac circuits
Testing or Diagnosing of 50 – 1000 volt rms dc circuits
Voltages are measured to ground. No terminal to terminal voltage within the control zone may exceed 250 Vac rms or 1000 Vdc peak to peak.

Justification:
Diagnosis of equipment malfunction or initial equipment malfunction or initial equipment checkout can only be performed when energized.

Start Date and Time: **FEBRUARY 28, 2004**		Estimated Finish Date and Time: **FEBRUARY 28, 2005**	
✓	Electrical massive ground, live terminals	✓	Mechanical conditions
✓	Environmental conditions	✓	Working space constraints
✓	Obstructions in area	✓	Other energized circuits/parts

Describe Hazards: (See ES&H Standard 1.5.0, Appendix III for guidance)
Electrical shock, Blast, Flash
High currents can create high temperatures, and melt wires and components.

Procedures of Task

Procedure: Refer to C-A-OPM-ATT 1.5.c

Warnings Specified: Follow NFPA 70E or Local Postings

Clearance Zones: Follow NFPA 70E or Local Postings

Personnel Protective Equipment: Follow NFPA 70E or Local Postings

Approval to proceed: Jon Sandberg Date: 3/22/04
(Signature of Department Chair/Division Head or Formal Designee)

REQUIRED FOR CIRCUITS ABOVE 600 Vac OR 6000 Vdc TO GROUND:

Independent Reviewer(s): Not applicable to this permit
(Signature)

Authorized Employee	Life Number	Employee Signature (indicating employee understands procedure, hazards, and precautions)

Supervisor:	Date:
Supervisor acknowledges the above personnel are properly trained, knowledgeable, and experienced to work under this permit.	

PRECAUTIONS

- Be Alert
- Provide adequate illumination
- Remove conductive apparel
- Follow requirements of NFPA 70E for Approach Boundaries, Risk Assessment and PPE

Copies of completed form are to be sent to the Department ES&H Coordinator. The person doing the job must have a copy of this signed permit at the work area.

Safety Information for Testing or Diagnosing of Sub-range B Energized Circuits

1. Identify and locate:
   - Power sources and shutoff devices
   - Emergency telephones

2. Establish work area:
   - Notify affected personnel
   - Cordon off work area

3. Remove Conductive Apparel

4. Review NFPA 70E for proper Personal Protective Equipment.

5. Wear safety glasses

6. Measurement technique:
   - Ground one terminal of tester
   - Measure to ground
   - Use one hand at a time

7. De-energize all sources and stored energy devices
   - Verify

8. Lock-out and Tag-out all sources of energy:
   - Verify

9. Re-energize Only sources < 132 Volts RMS AC or 300 Volts DC to ground

10. Use “WIGGY” or similar tester to verify

11. Stop work and report to supervisor in any warning conditions exist

12. Perform Testing

13. STOP if terminal cannot be reached or is not in sight

14. On completion of work:
    - Remove all materials and equipment
    - Close enclosures
    - Remove barriers
    - Notify affected personnel
    - Remove locks and tags
    - Re-energize equipment
    - Report to supervisor